USAID | JORDAN
FROM THE AMERICAN PEOPLE

SUCCESS STORY

National Chlorine Plant Improves Production with Membrane Technology and VFDs

Industrial facility installs energy-efficient equipment.

Energy-efficient membrane technology reduced costs.

In addition to saving energy, NCI is reducing its risk of environmental exposure; lowering fuel oil consumption by 58,000 liters per year; and reducing water consumption by 120 cubic meters per year.

Eng. Yosef Bader, Quality Manager, says: "It is very satisfying to tell my children our company is being environmentally responsible, helping Jordan's environment by reducing our electricity, fuel and water usage."

National Chlorine Industries (NCI) in Almowaqqar, Jordan, has made operational improvements that reduce its energy consumption and its carbon footprint – while increasing production.

Encouraged by discussions about reducing waste with the staff of USAID's Water Reuse and Environmental Conservation Project, NCI management embarked on a comprehensive internal audit of the facility. They determined that two improvements stood out in terms of combining environmental benefits and speedy payback of investment:

- Using energy-efficient production equipment, including new membrane technology
- Installing variable frequency drives (VFDs) and temperature sensors on cooling tower fans

By investing in these improvements, the NCI facility has increased its production and is reducing its consumption of electricity by approximately 9 megawatts per year. The majority of the savings are associated with the new membrane technology. However, the installation of VFDs and temperature sensors also reduced the energy consumption of the cooling towers by about 20%. Overall, these improvements reduce carbon dioxide (CO_2) equivalent emissions by an estimated 4,700 metric tons per year.

Maintenance Section Head Eng. Farid Talal says: "We have always tried to be environmentally responsible, and now we will be able to reduce our electricity consumption by 20% and achieve expected savings of 630,000 JOD per year." With the increase in the electricity tariff for 2015, the expected savings will be closer to 720,000 JOD.

NCI is one of 30 industrial partners working with USAID to reduce industrial pollution and conserve scarce water and energy resources – in ways that benefit the bottom line. The Water Reuse and Environmental Conservation Project examined water and energy use, material and waste flow, production processes, quality control, and other aspects of each facility's operations. The assessments suggested options for minimizing pollution and saving water, energy, and money. Costs and payback periods for various options were also analyzed.